Newland

NLS-PT980 Series

Portable Data Collection Terminal

User Manual V2.1

V2.1 Version

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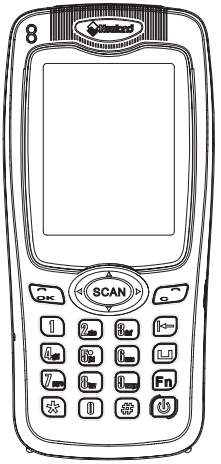
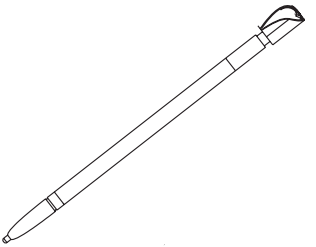
Standard Configuration

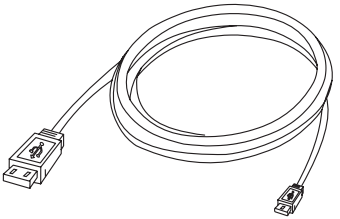
» NLS-PT980 Main Machine



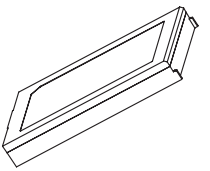
» Stylus Pen



» USB Slave Cable

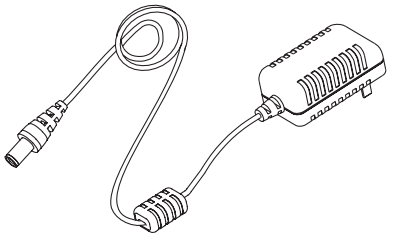


» Li Battery

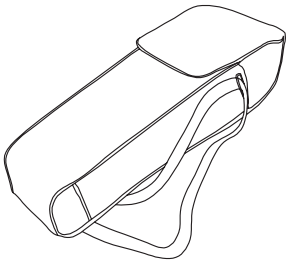


Optional Configuration

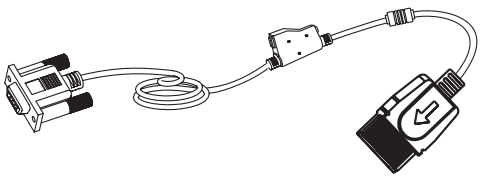
» Power Adapter



» Leather Case



» Communication Cable



Tips and Cautions

Cautions

» Disassemble and Refit

Unauthorized disassemble and refit will avoid the limited warranty

» Power Adapter

Only manufacturer original power adapter should be applied. Improper adapter causes permanent damage and avoids the limited warranty

» Phenomenon & Safety

Avoid using in extreme atmosphere, for example near a flame or fire. Pull out off the mains immediately when the device emitting peculiar heat, smell or smoke.

» Drop

Deadly dropping causes permanent damage. Switch power off immediately and contact your supplier.

» LCD Touch Screen

Avoid deadly pressure or impact on LCD.

Prohibited touching the exudation liquid if LCD is broke. The liquid is biological highly hazardous.

» Stack Limit

Do not stack heavy object onto the device (package).

» Environment

Use, place, restore the device in a careful and steady manner. Do not leave it on an uneven surface. Avoid damp or dusty environment. It may cause electric shock, breakdown or fire. Avoid prolonged exposure to the sun.

» Radiation Safety

Prohibit use in radiation restricted area, such as on the plane, in the gas station or in the hospital.

Prohibit battery charging and communication (wire & wireless) in explosive environment.

General Usage Tips

» When system halt, press “Reset” button using the stylus pen. Please see Page 9 to locate the position of “Reset” button.

» Crash, throw, impact and fold will cause permanent LCD damage, system halt and irreversible data loss.

» Use brush and soft cloth to keep the scan window clean is the only work needs to do. Improper maintenance will avoid limited warranty.

» Do not use sharp object to operate keyboard and the touch screen.

» Only use dry and soft cloth to clean the device. Any liquid cleanser may cause housing distortion and aging.

» Do not leave the device face down.

» Do not remove battery when the device is power on. It will cause data loss.

» Sudden temperature change will cause dew. It may disturb normal performance. Avoid sudden temperature change. Do not use the device until dew naturally dried.

Battery Usage & Cautions

» Flame or fire the battery will cause explosion!

» To reach the best capacity, battery should be charged and discharged thoroughly for 2~3 times.

» Average life-span is 500 times charge and discharge, each. Please order new batteries when the endurance becomes shorter significantly.

» Only manufacturer approved battery and adapter should be applied.

» Disconnect the adapter from the mains when it is not charging. Prolonged charging (for one week) will shorten battery life-span. Full charged battery will naturally discharge if leave unused.

» Exhaust the battery before charge by leaving the device power on. Do not discharge by other means.

» Do not use invalid battery and adapter. 。

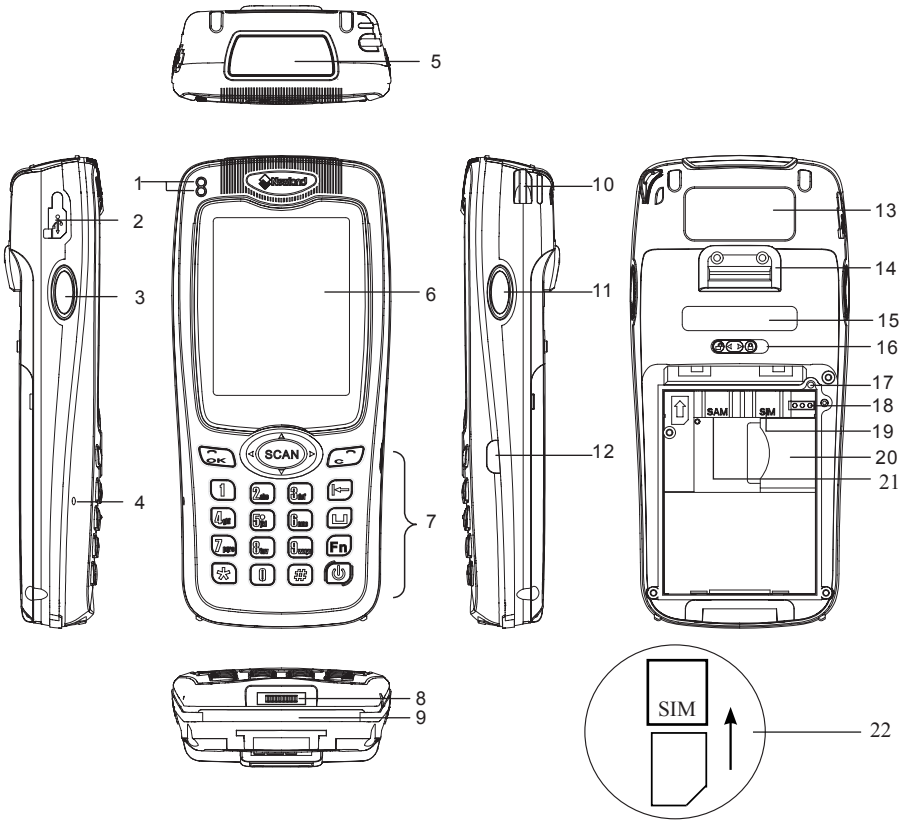
» Please recycle the battery cautiously. Do not process it with municipal solid waste.

Specifications

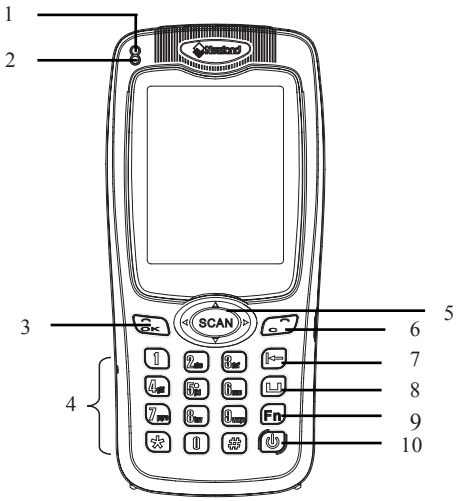
Specification		PT980	PT982	PT983	PT981
CPU		XScale PXA 270, 312MHz			
Memory		SDRAM: 64 MB			
		NAND Flash: 128MB, expandable to 256MB			
		Suppor Minii SD up to 2GB			
Display		262K color TFT touch panel, 2.8inches, 240*320 resolution			
Keyboard		25 keys			
MTBF		5000 hours			
Interface	RS232	9.6~115.2kbps			
	USB	Host & Slave1.1			
Optional	IC Card	ISO7816, support SAM card			
	GPRS	GSM 850 / 900 / 1800 / 1900 MHz, 85.4Kbps(Max)			
	CDMA	800 MHz, 153.6Kbps (Max)			
	WiFi	IEEE 802.11g, 2.4GHz, DSSS,14dBm, WEP 64/128			
	BlueTooth	Class 2, 10m			
Reading Modes		Laser	Image	CCD	RFID
Symbologies			PDF417,QR Code, Data Matrix, Maxicode, Aztec，龙贝码等		Mifare(ISO 14443A) TI(ISO 15693) EM(125K)
		Code128,EAN-13,EAN-8,Code39,UPC-A,UPC-E, Codabar, Interleaved 2 of 5,China post 25,ISBN/ISSN,Code93, etc.			
Precision		≥6 mil	≥3 mil	≥4 mil	
Mechanical/Electrical					
Battery		3.7V Li-battery, 2400mAH			
Standby Time		≥150hours			
Scan Time		>5000 times			
Power Adapter		Output: DC5V, 2A; Input: AC100~240V, 50~60HZ			
Power Comsuption	Idle	3mW			
	Typical	0.54W			
	Peak	2W			
Drop		1.2 m drops to concrete			
Weight		250g			
IP-rating		IP54			
Dimensions		156 mm(L) * 72 (W)mm * 31 (H) mm			
Environment					
Operate Temperature		-5 ° C ~ + 45 ° C			
Storage Temperature		-20 ° C ~ + 55 ° C			
Operate Humidity		5% - 90% (no condensation)			
Storage Humidity		5% - 95% (no condensation)			
Operating System					
WinCE.net 6.0 (Linux optional)					
Certificates					
FCC Part15 Class B, CE EMC Class B,CCC					

Product Outline

Outline



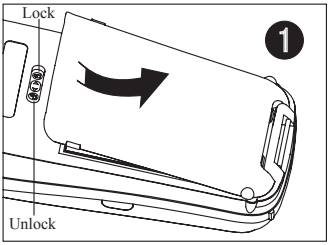
1.Indicator	2.USB Slave/Earphone	3.Left Fn Key (F13)
4.Beeper	5.Scan Window	6.LCD
7.Keyboard	8.USB Host	9.IC Slot
10.Stylus Pen	11.Right Fn Key (F14)	12.IrDA Port
13.Label	14.Hand Belt Ring	15.ID Label
16.Battery Lid	17.Reset	18.Contact Pins
19.SIM Slot	20.SD Slot	21.SAM Slot
22.The direction to insert SIM Card		



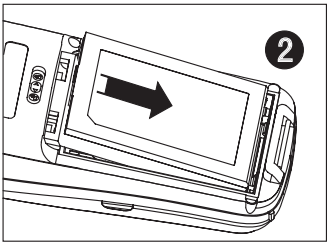
1、Power Indicator Charging: red light keep on. Charged: green light keep on. Red turns Green: Adapter connected. No battery inserted.	
2、GPRS Indicator Green Flash (1 sec interval): GPRS power up. No SIM card. Green Flash (3 sec interval): GPRS power up. SIM card connected to network.	
3、Enter / Talk	4、Numeric, alphabet, character keys
5、Scan（F15）/Direction Key	6、Cancel/Stop Talking
7、Backspace	8、Space
9、Function Key(F16) (Customizable)	10、Power Key (Power On, Power OFF, Idle

NOTE: See the page 52 for the key value.

Dismount Battery

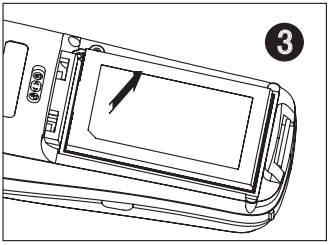


Step 1:
Push lid lock button to unlock. Remove the lid as it shown in the picture.

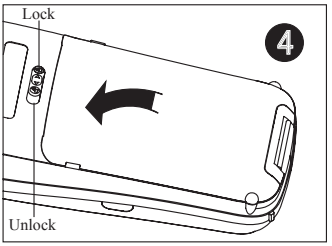


Step2：

Gently press to release the battery.

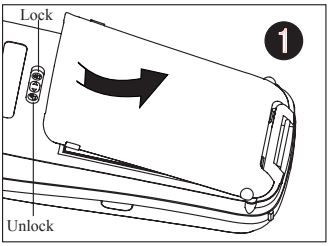


Step 3:
Remove the battery as it shown in the picture.

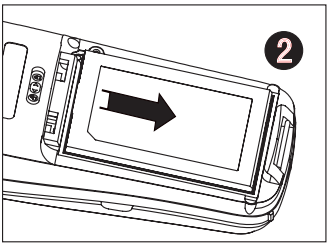


Step 4:
Reverse Step 1 to mount the battery lid. Push lid lock to fasten.

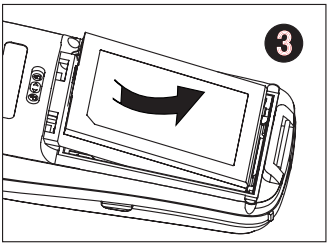
Mount Battery



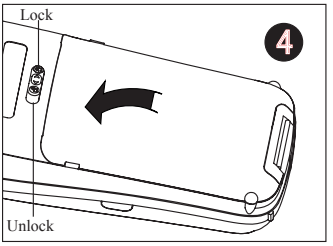
Step 1:
Push lid lock button to unlock. Remove the lid as it shown in the picture.



Step 2:
Fit the battery with the copper contact pin.



Step 3:
Press to insert the battery.



Step 4:
Reverse Step 1 to mount the battery lid.
Push lid lock to fasten.

Power ON/OFF Idle Charge

» Power ON

Long press on “Power” button 2~3 seconds to power on.

Windows desktop will pop up.

» Idle

Touch “Power” button when the device is on. (Idle function is enabled)

Program Idle Function: Start—>Settings—>Control Panel—>Power Management

Touch “Power” button to wakeup idle mode.

» Power OFF

Long press on “Power” button 2~3 seconds to power off

» Charge

Charging Methods :

1. Connect the device with a Host by USB Slave port.

2. Connect the device (USB host port) with the mains by cable and adapter.

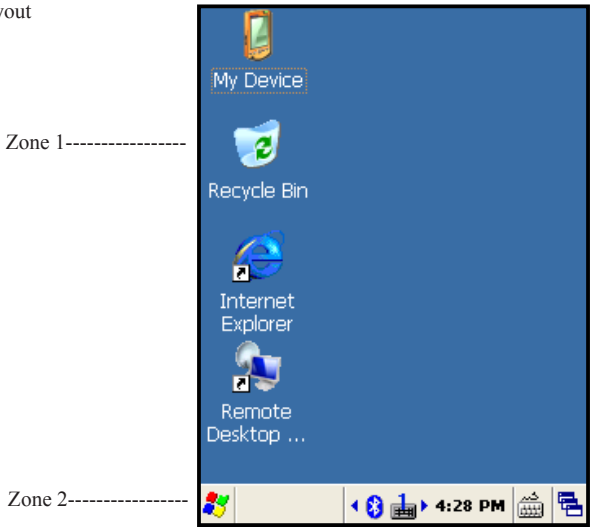
Charging Time: approximately 4 hours.

Fully Charged: red power indicator turns green.

* Only manufacturer approved battery and adapter should be applied.

Operation Interface

Desktop Layout



Zone 1: Recycle Bin, My Device, Internet Explorer and other shortcuts.

Zone 2:Toolbar icons, Left to right :

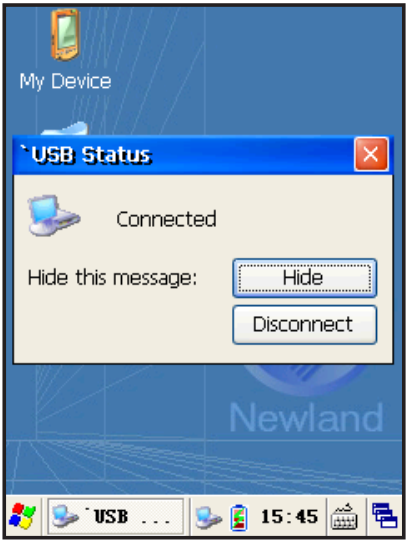
- Start: slide on the panel to select, touch to confirm selection
- Connection: shows connection with a Host, through USB slave port;
- Keypad Status: change input status. There are three status: English Capital, Small and Number.
- Power: shows capacity. double click to open “Power Management”
- Telephone:shows the intensity of GPRS signal
- Bluetooth: shows Bluetooth Connection
- WiFi: shows WiFi Connection
- 14:09 Time: show system time. Double click to open “Date/Time Properties”
- Input Choice: Click icon to show input choices. Click to confirm choice
- Display Desktop: click to display desktop.

System Toolbar

"Start" Button

Tap and slide on the panel to select. Touch to confirm selection

Connection Status

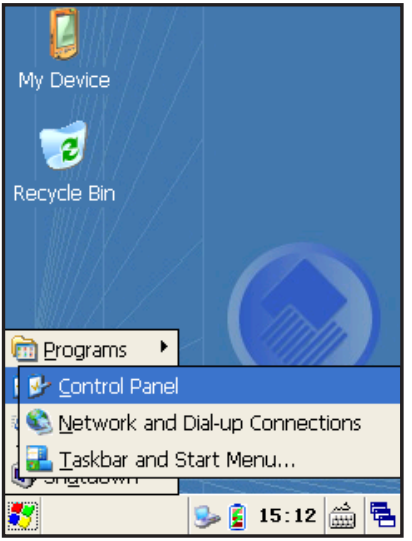


shows the intensity of GPRS signal . Double click to open the dialog in the picture.

shows connection with a Host, through USB slave port;

System Toolbar

System Time

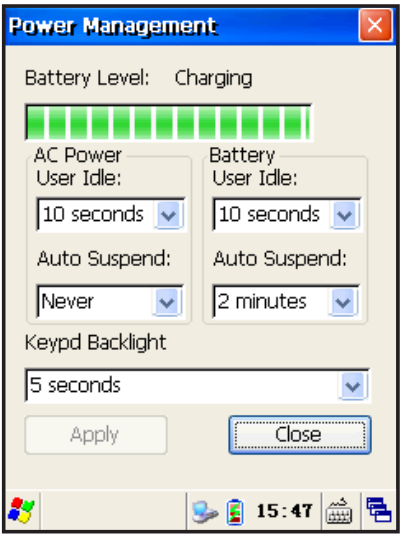


Double click the icon to open “Date/ Time Properties”.

Or setup time from “Start”—> “Settings”—> “Control Panel” —> “Date/Time”.

Click “Apply” to confirm settings.

Power Icon



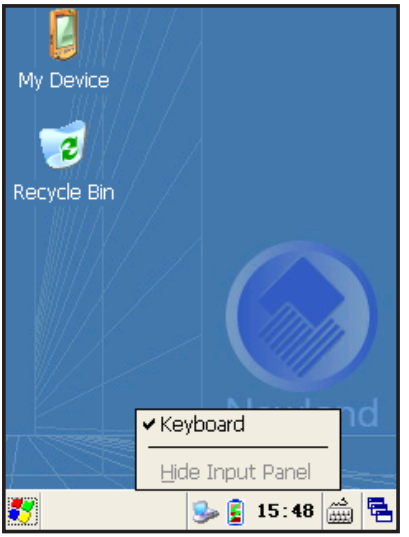
Double Click to open “Power Management”.

“Low-power”: Screen brightness turns low and other modules turn to power saving mode. （any operation to wakeup）

“Auto Idle”: Most modules switch off. Operational variables restore in volatile memory. Any commencing operation (screen, transmission or other) prevents idle mode.(short touch “Power” to wakeup)

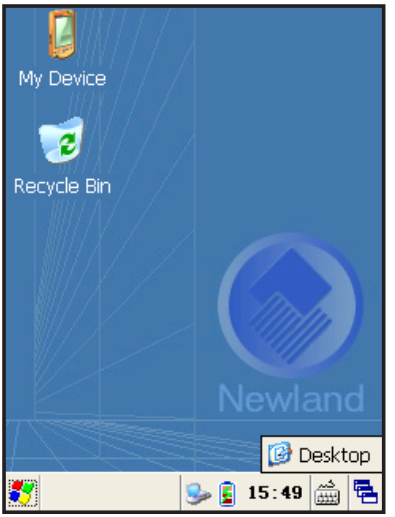
System Toolbar

Input Choice Icon



Click icon to slide show input choices.
Click to confirm choice
Click icon again to hind slide show

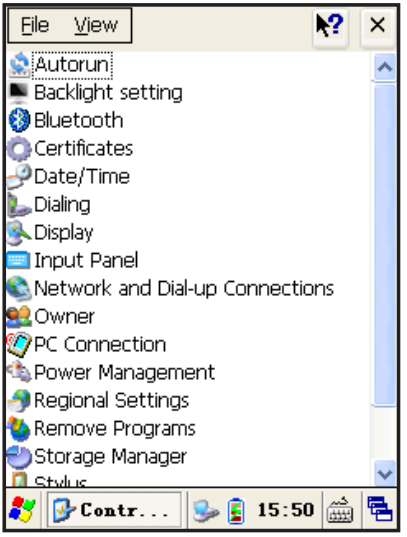
Display Desktop



Click the icon to show desktop.

Control Panel

Open Control Panel

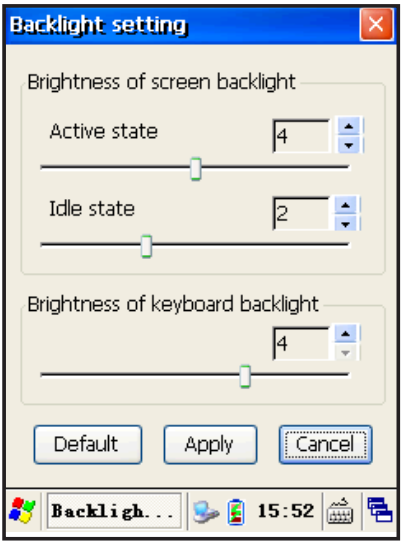


"Start" —> "Settings" —> "Control Panel"

PC Connection

Setup direct connections to the desktop computer: enable, disable and communication type.

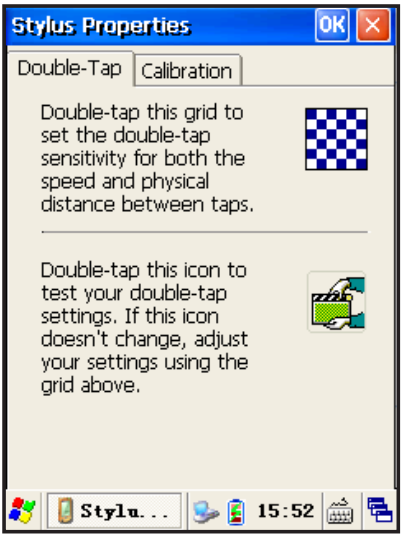
Backlight Setting



Setup backlight for 2 status:
① Normal Mode: The device working in full power state.
②Low-power Mode: Screen brightness turns low and other modules turn to power saving mode.

Keyboard backlight brightness stays the same in two modes.

Stylus


Stylus Properties
OK
Double-Tap
Calibration
Double-tap this grid to set the double-tap sensitivity for both the speed and physical distance between taps.
Double-tap this icon to test your double-tap settings. If this icon doesn't change, adjust your settings using the grid above.
Stylu...
15:52

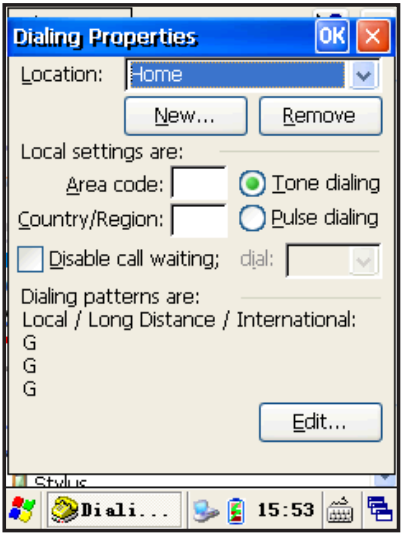
Click interval: the time between two clicks.

Click gap: the distance between the two clicks.

Double-Tap: double click to setup interval and gap. Double click to test the setup

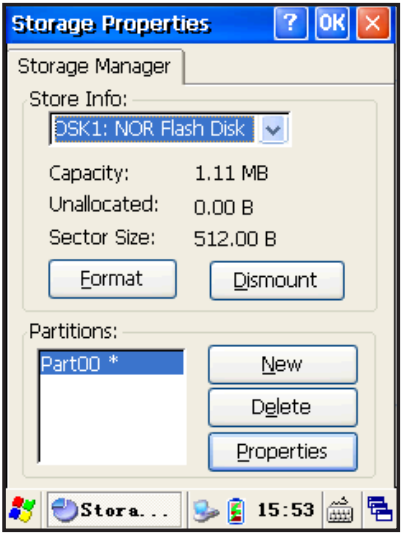
Calibration: to rectify touch panel location. Press and hold “+” for 2~3 seconds, as long as it moves.

Dialing Properties



Double click “Dialing” to open “Dialing Properties”.

Storage Manger

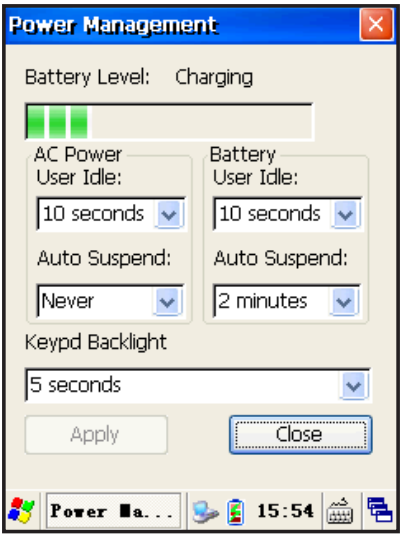


Double click “Storage Manager” to open “Storage Properties”.

Caution: The settings bellow may cause system failure

Format: permanently delete all data in selected disk.
Dismount: disconnect selected disk
New: create a partition in selected disk
Delete: delete selected partition.

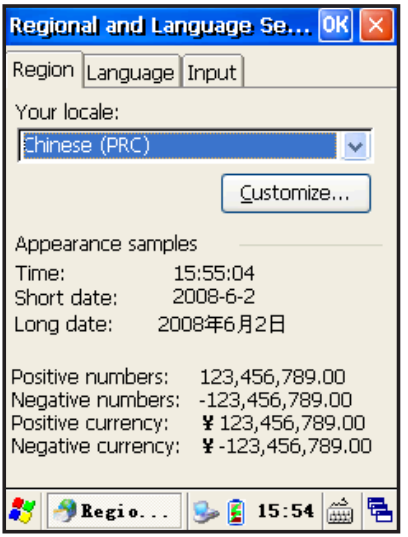
Power Management



“Low-power”:
screen brightness turns low and other modules turn to power saving mode.

“Auto Idle”:
Most modules switch off. Operational variables restore in volatile memory. Any commencing operation (screen, transmission or other) prevents idle mode.

Region and Language Setting



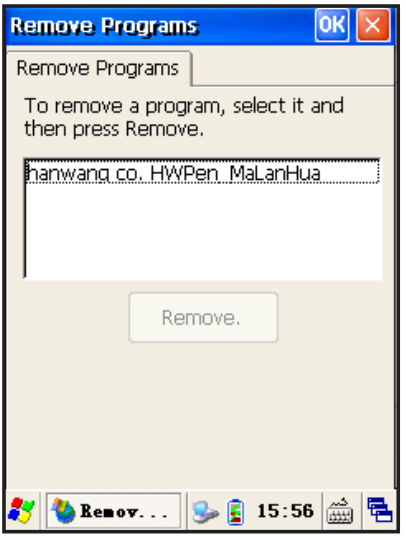
Double click “Regional Setting” to open “Region and Language Setting”

Control Panel

Date/Time

To setup date, time and time zone.

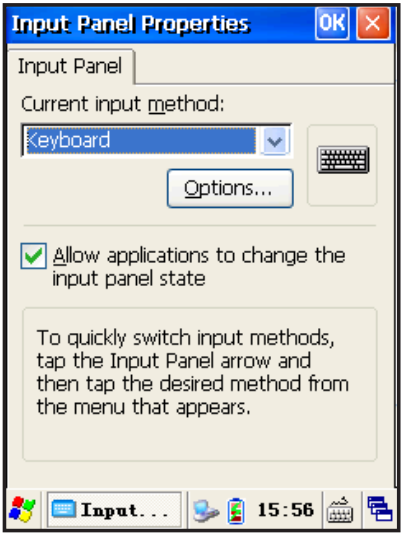
Remove Program



Select and click “Remove” to uninstall programs.

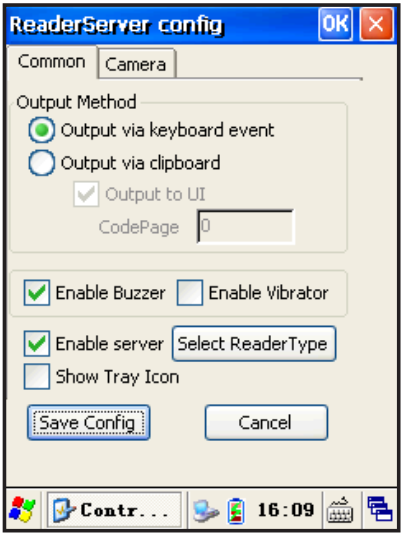
Control Panel

Input Panel


Input Panel Properties
OK
Input Panel
Current input method:
Keyboard
Options...
Allow applications to change the input panel state
To quickly switch input methods, tap the Input Panel arrow and then tap the desired method from the menu that appears.
Input...
15:56

Setup default input method
Click “Options” to select user preferences.

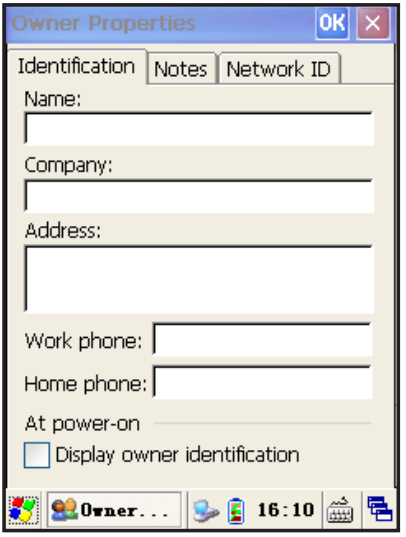
ReaderServer Configuration



Run “ReaderServer” before reading. It output reading results to keyboard event or clipboard. See page 42 for detail.

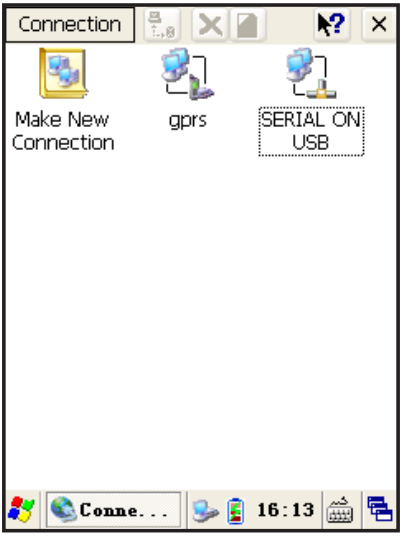
Control Panel

Owner



Display and edit ID, owner notes and Network ID.

Network and Dial-up Connections

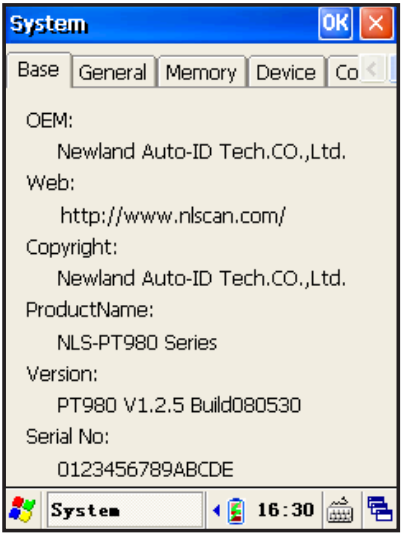


New a connection and configuration GPRS connection. See page 24 for details.

“SERIAL ON USB”: shows connection with a Host, through USB slave port;.

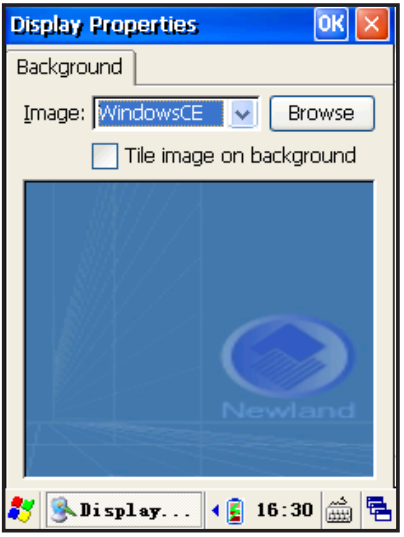
Control Panel

System



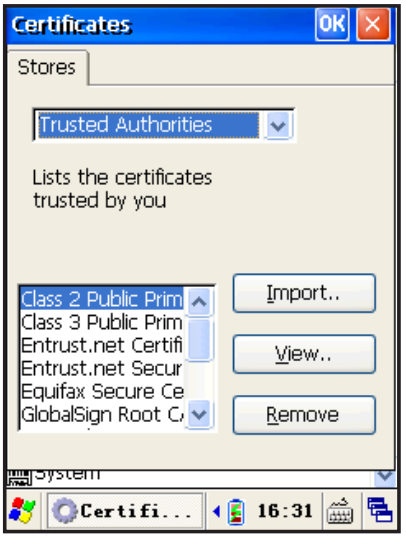
To check the system information: Basic, General, Memory, Device, Copy right.

Display



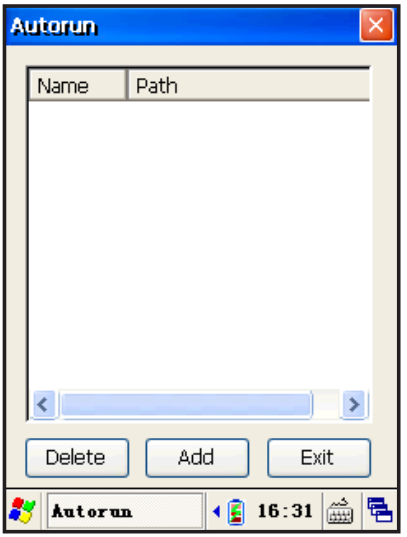
Select a desktop picture

Certificates



Import, View or remove certifications.

Autorun



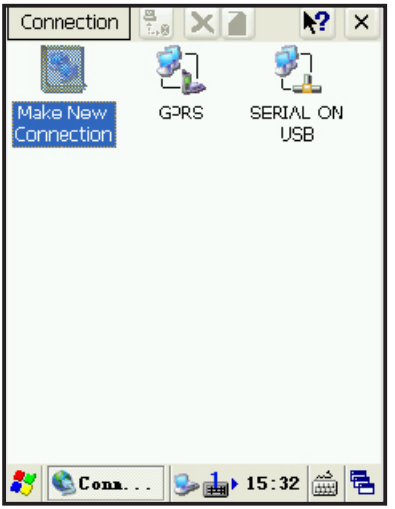
Select programs automatically launch when power on.

GPRS Connection Setup

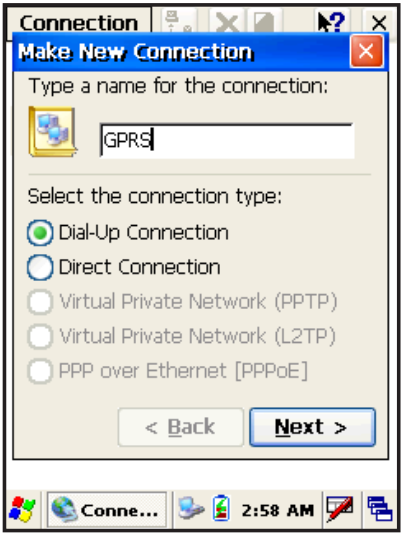
Your PT980 has setup a GPRS Coneection. If you are using PT980 in China, you can click Start—>Settings—>（Control Panel—>）Network and Dial-up Connections, then double click GPRS to use it .

If you are not, you can new a GPRS connection or modify related parameters. Please see “Create a Connection” to get more details about parameters.

Create a Connection



Click Start—>Settings—>（Control Panel—>）Network and Dial-up Connections, then double click “Make New Connection”, you will see the following dialog:

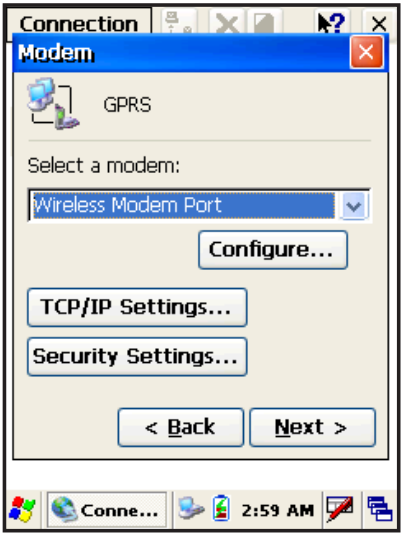


Rename “My Connection” to be a friendly name.

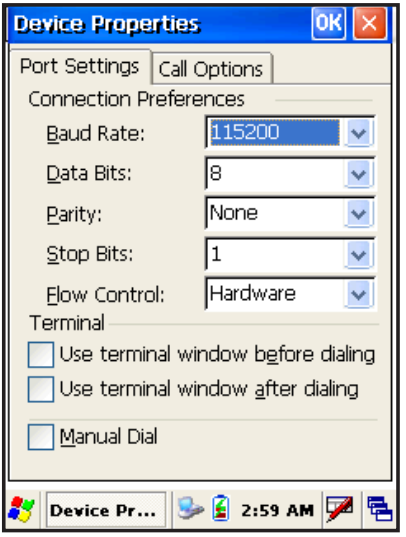
New a GPRS, select “Dial-Up Connection”

New a direct connection through USB or serial port, select “Direct Connection”

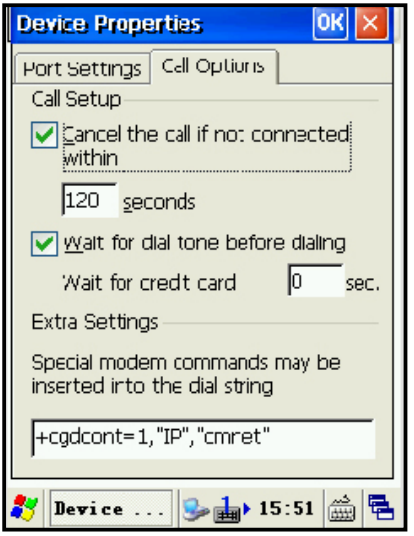
New a Virtual Network, select “Virtual Private Network”



Select “Wireless modem Port”, click “Configure”. The following dialog popup.



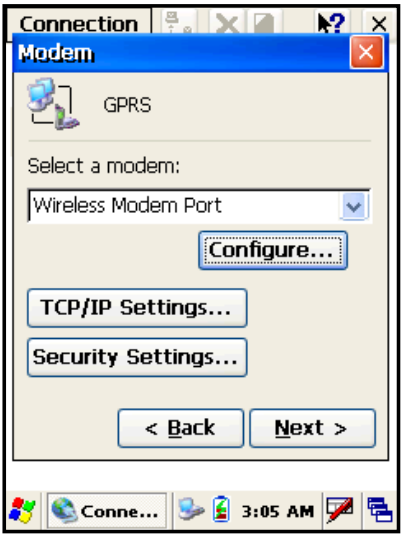
Select bard rate “115200” in the “Port Settings” dialog. Leave other options to be default.



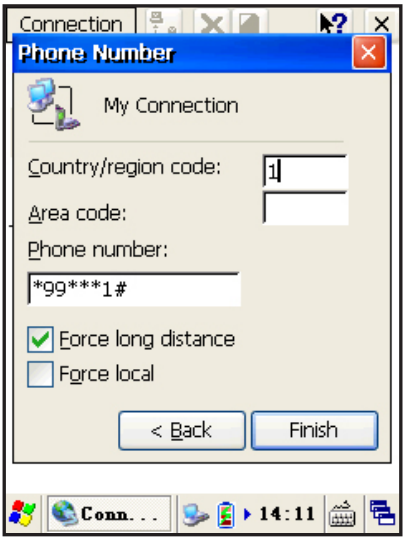
Select “Call Options” to access this dialog.

Fill the “Extra Settings” box with [+CGDCONT=1, “IP”, “APN”]. Ask the GPRS network provider for APN (Access Point Name).

Click “OK” proceed to next dialog.



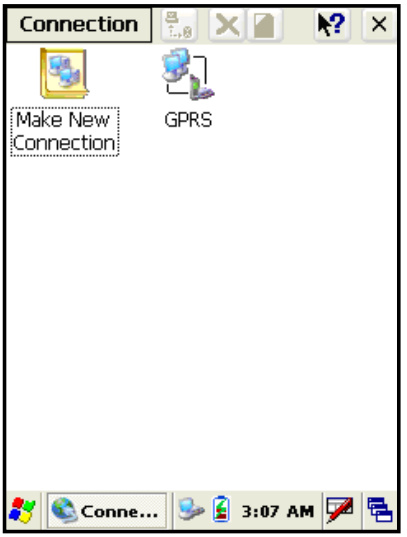
Click “Next” to proceed.



Fill “Country/region code” and “Area code” with required digits.

Always fill “Phone number” with [*99***1#].

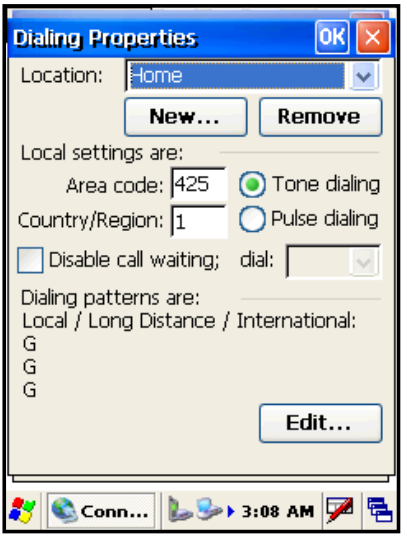
Click “Finish” to complete setup.



A new GPRS dial-up created in this dialog.

Double click to configure and dial.

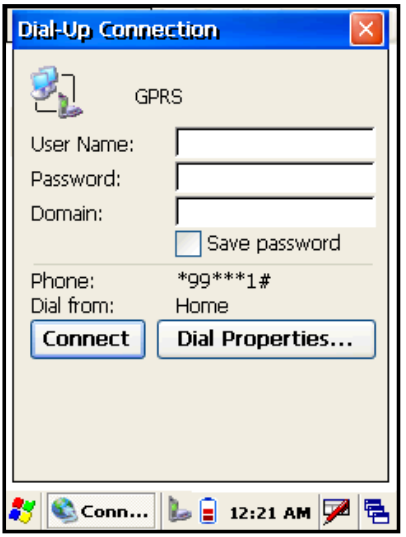
There will be an icon appearing in the toolbar.
Click “Dial Properties” progress to next.



Click “Edit” to fill in dialing patterns.

Fill the 3 dialing patterns with “G”.

Click “OK” twice to finish.



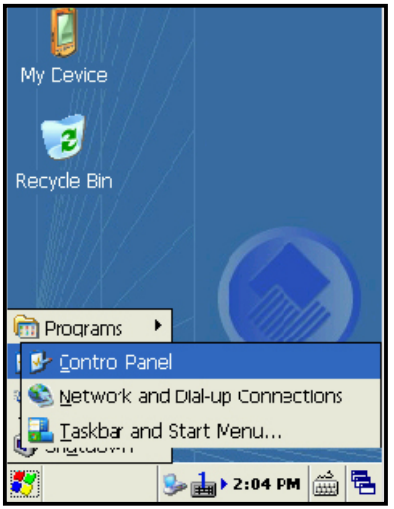
Do not fill the blanks.

Click “Connect”

The GPRS dialing has finished. You can use GPRS now.

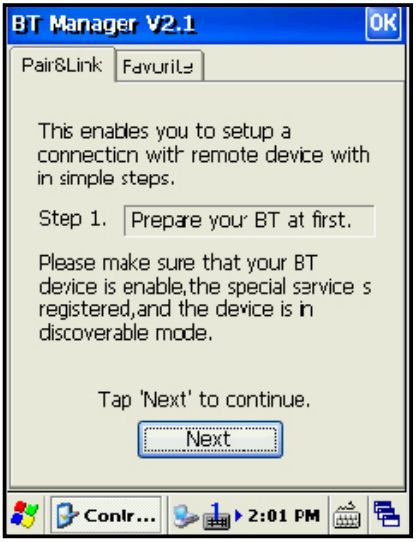
You can click to get the dialog showing left.

Create Connection

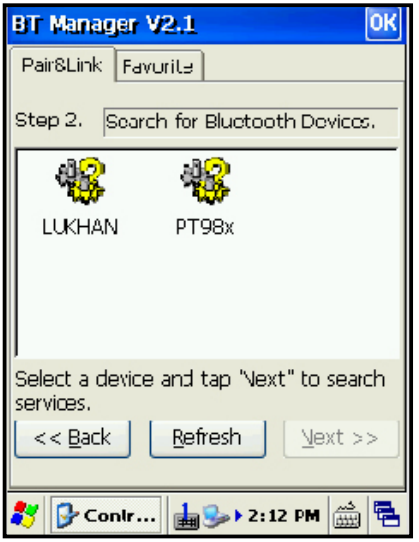


Click Start—>Control Panel.

Double click “Bluetooth Device Properties”.

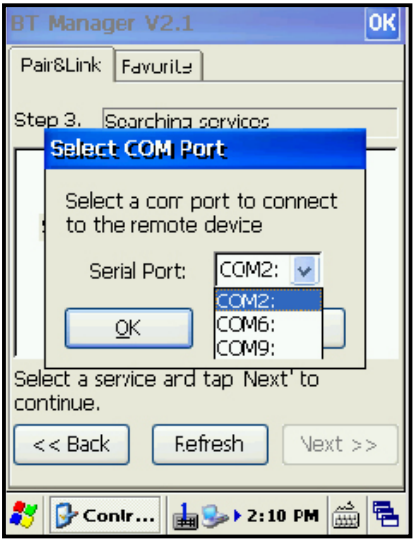

BT Manager V2.1
OK
Pair&Link
Favurite
This enables you to setup a connection with remote device with in simple steps.
Step 1.
Prepare your BT at first.
Please make sure that your BT device is enable,the special service s registered,and the device is in discoverable mode.
Tap 'Next' to continue.
Next
Conlr...
2:01 PM

This is the interface of BT Manager V2.1.



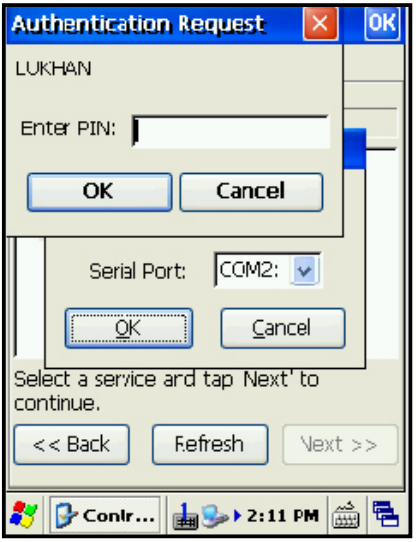
Click “Next”, PT980 starts to search for Bluetooth devices. And the available devices will be listed below.

Double click the device you want to connect, such as “LUKHAN”, the main machine will start to searching services.

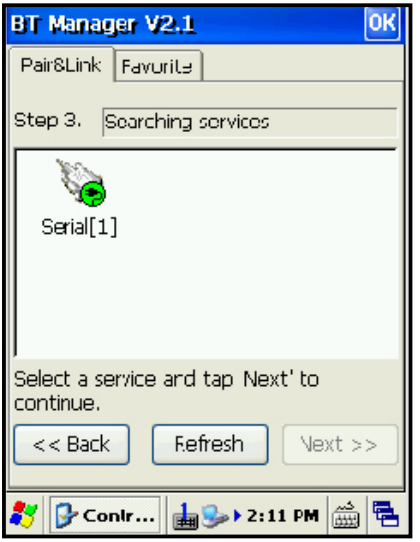


Double click

, and choose a COM port to connect.

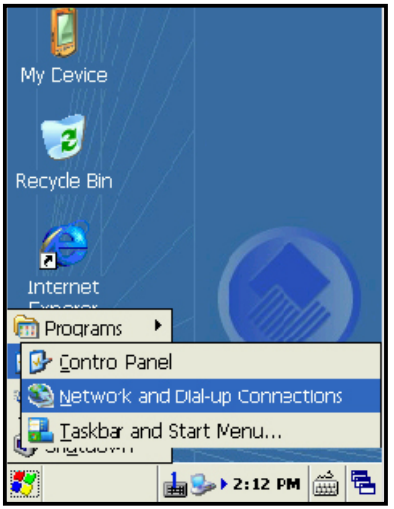


If the Bluetooth device requests authentication, you should enter PIN to connect.

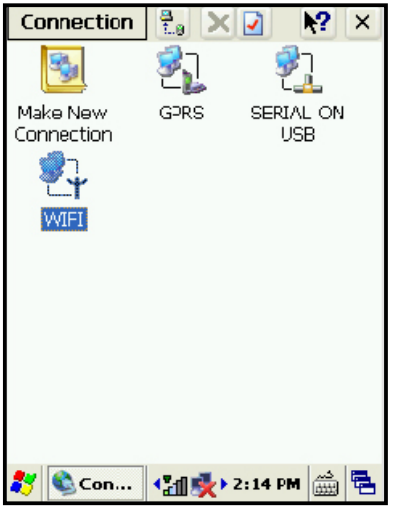


When connection is successful, the icon will has a green round mark on it . Click “OK” to quit.

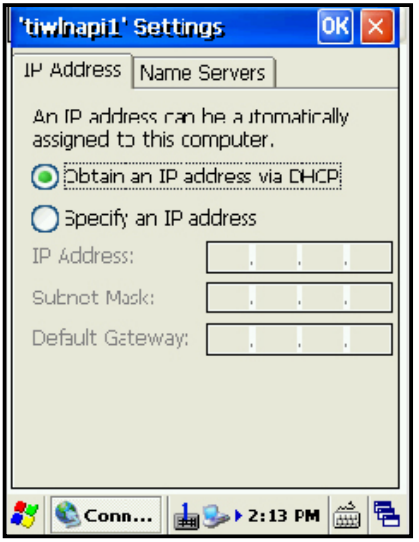
Create Connection



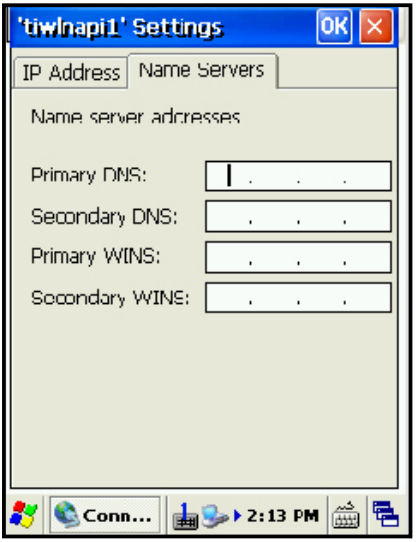
Click Start—>Network and Dial-up Connections.



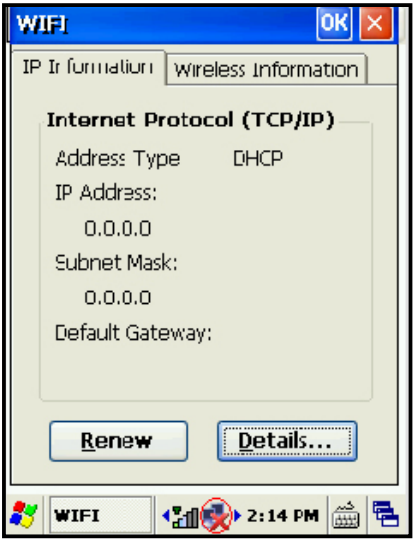
Double click “WiFi” icon and the interface of WiFi settings will be shown.



“tiwlnapi1” Settings has two tabs. Left picture shows the interface of IP Address. You can obtain an IP address via DHCP or input it by yourself.

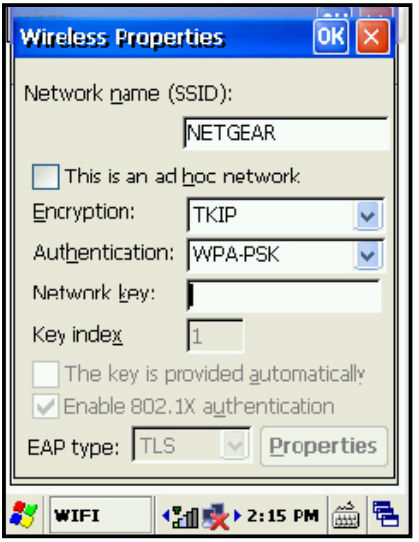


This is the interface of Name Servers. When settings are finished, it could be saved by clicking “OK”.



Double click Network Connection icon to enter WiFi interface.

Click “Wireless Information” tab and choose the network you want to connect in the list. Then click “Connect”.

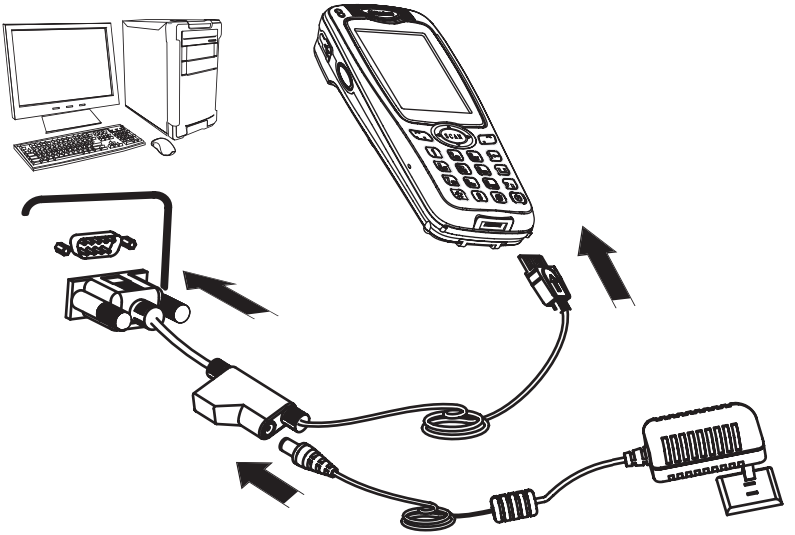


Choose the network's Encryption and Authentication types and input network key, then click "OK" to connect.

When connection is successful, there will be a remark of "prefered" following the Network's name.

Connect PT980 & Host

RS232

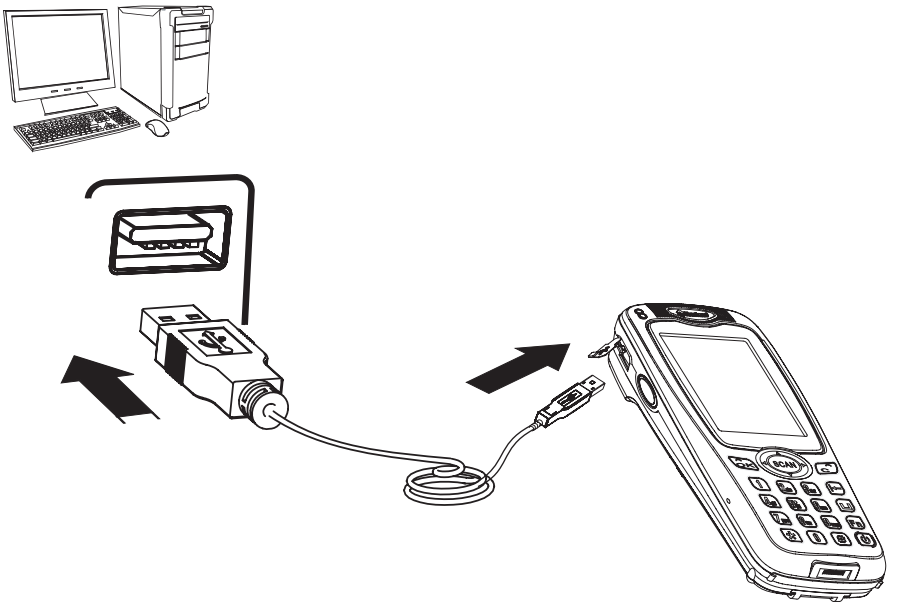


1、Connect the Host (RS232 female DIN) and PT980 (female DIN) with RS232 & USB Host Cable

2、Connect RS232 cable and the mains with power adapter

3、Switch ON and perform

USB Slave



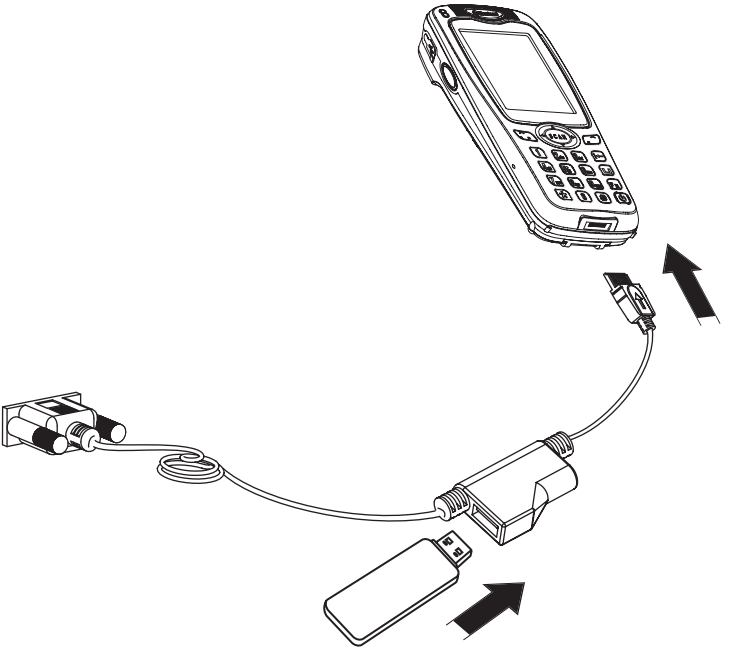
1、Open USB slave port rubber on the top left corner.

2、Connect the Host and PT980 with USB slave cable.

3、Switch on and perform.

Note: “Microsoft ActiveSync” should be installed in the Host to establish connection for PT980 and the Host.

USB Host



1、Connect PT980 and the peripheral equipment with RS232 & USB Host Cable

2、Insert peripheral equipment into USB port on the cable.

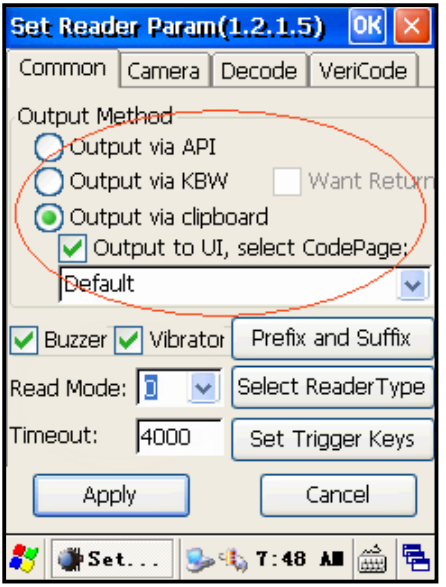
3、Switch on and perform.

Reader Server

"ReaderServer", a barcode reading program (server) has been installed in advance. Follow the steps to open: start->setting->control panel->ReaderServer.

ReaderServer supports reading 1D&2D barcode. RFID Function will be provided later.

ReaderServer is for reading configurations. It uses keyboard or clipboard events to output barcode messages.



Two settings in this program:

1. Common

1) Output Method:

» Output via keyboard event: Emulate keystrokes on the keyboard to output barcode messages.

» Output via clipboard: output barcode messages to the clipboard.

» Output via API: the user must transfer our API for getting the result of decoding.

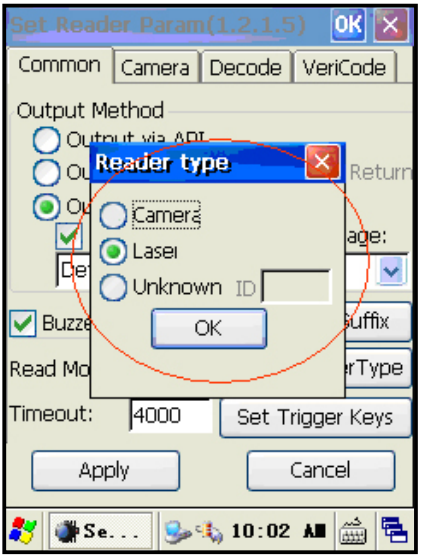
2) Buzzer: Beep on a successful decode

3) Vibrator: Vibrate on a successful decode

2. Camera

Will be explained in details below

Configure ReaderServer in the Control Pane



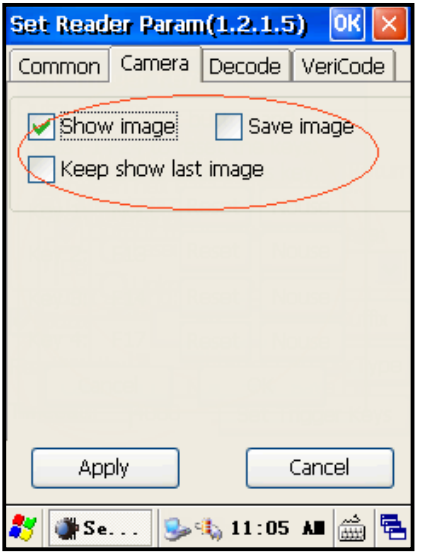
Looking at the picture above, the dialog “Reader type” will jump out when you press the button “Select Reader Type”. There are three types you can select.

Click "Select ReaderType" and choose Laser, there is only a configuration page which named “Common”

Adjust the distance and angle between PT980 and barcode. For the optimum reading stance, laser width should be 4mm more than barcode width. Then trigger to read.

Right Stance	Wrong Stance

Configure Reader Server in the Control Panel



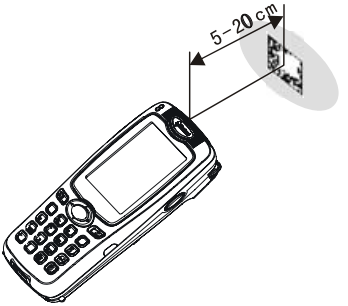
The dialog “Reader type” will jump out when you press the button “Select Reader Type”. If you select “Camera”, there are four configuration pages. They are “Common”, “Camera”, “Decode” and “VeriCode”.

Looking at the picture above, there are three items in this configuration page. They are “Show image”, “Save image” and “Keep show last image”.
If you select “Show image”, the device will show image in the interface when scanning. And then the configure item “Keep show last image” will enable to be set. If you select it, the device will show the last image when stop scanning.
If you select “Save image”, the device will save the image when scan successfully. And the image which named “cmos-img.bmp” save in the “My Device”.

Optimum Reading Stance:

1、Focus the green aiming bar on the central of a barcode.

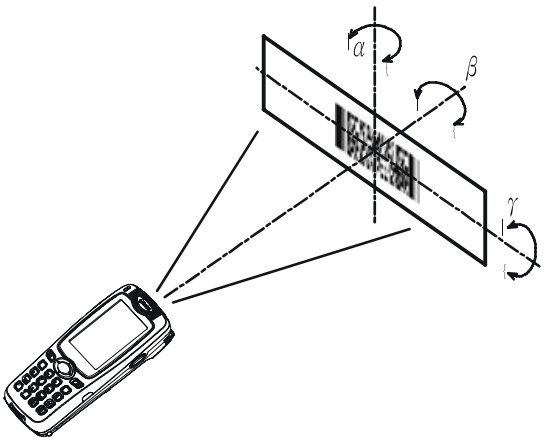
2、The distance of scan window & barcode between 5cm and 20cm



3、Yaw (α as below)between 0° and 45° （0 is the best）

4、Pitch(γ as below) between 0° and 45° （5-20 is the best）

5、Roll (β as below)360°



How to Read RFID Card

Main machine has a RFID module to read RFID card. Adjust the distance of RFID reader & RFID card for the optimum reading stance, then trigger and perform.

Trouble Shooting

Malfunction		Shootings
Key	Key failure, inaction, wrong response	Please contact your supplier for services.
Power	Charging indicator no response	Ensure adaptor is plugged correctly
	Battery incompetent performance	1. Ensure battery is fully charged. 2. Battery reaches invalidation. Please replace with a new one.
	Power tray icon do not show	Battery reaches invalidation. Please replace with a new one.
RS232	Incompetent communication	1. RS232 cable is connected properly. 2. Clean the object blocked in RS232 port. 3. Discontinuity connection, adjust cable will resume a short connection. RS232 cable head is oxidized. Clean the head surface. 4. Ensure use the same COM port and the same baud rate in the Host and PT980 5. Above methods do not work out, contact supplier for services.
IrDA	Incompetent communication	1. Clean the IrDA port with dry and soft cloth 2. Ensure two IrDA port facing directly 3. Above methods do not work out, contact supplier for services.

Malfunction		Shootings
USB	Incompetent communication	1、USB cable is connected properly 2、Clean the object blocked in RS232 port. 3、Above methods do not work out, contact supplier for services.
Screen	Screen black and no response	1、Ensure PT980 is power on 2、PT980 is in idle state. Short touch power button to quit idle. 3、Ensure battery is competent for work 4、Battery loose contact. Reinsert battery. 5、Use a new battery. 6、Above methods do not work out, contact supplier for services.
System	Power on failure	1、Ensure battery is competent for work.If not, please charge it. 2、If PT980 could power on with power adapter, please charge the battery. If it still could not power on, please use a new battery.
	System halted	1、Ensure your application software is safe. 2、Please open the battery lid, press the RESET button by the stylus or a pin, then try again.

Introduction

» Operating System

PT980 series use Microsoft Windows CE 6.0 .NET OS. Any software in accordance with .NET Compact Framework 2.0 can be applied on PT980 series.

» Language

Support C, C++ , C# and VB.net, etc.

» Environment

When choose C++, environment need to be installed:

1) Microsoft Visual Studio 2005
2) Microsoft Visual Studio 2005 patch: VS80sp1-KB926601-X86-ENU.exe
3) PT980 SDK: uTools for CE(which could be downloaded from www.nlscan.com).

When choose VB.net

Visual studio 2005 or 2008, an integrated development environment, applies to PT980. It includes .net compact framework 2.0, and supports C# or VB.

» Establish Project

When establish project in Visual Studio 2005, select “SmartDevice” in “Project types”. If use C and C++ to develop, PT980 SDK: PT98X_UC_SDK.msi should be installed, and “PT98X” should be chosen in “Platforms”.

» Program Registry and Control

The registry table value correspond module functions of PT980. Modify the registry value can control performance of PT98X. for example: “Brightness of backlight LCD screen in working state” corresponds “HKLM\SYSTEM\CurrentControlSet\Control\Power\Backlight\On” in registry. And the value range is 0—100, the higher the value, the brighter the screen is.

Following tables show the registry and the usage.

Program Registry

Backlight of LCD Screen

Path	Type	Range	Remark	Validate
HKLM\SYSTEM\CurrentControlSet\Control\Power\Backlight\On	DWORD	0-100	Backlight of LCD screen in working state.	Restart
HKLM\SYSTEM\CurrentControlSet\Control\Power\Backlight\UserIdle	DWORD	0-100	Backlight of LCD screen in idle.	

Keypad Buz

Path	Type	Range	Remark	Validate
HKLM\PDA\BUZ\keypd\silent	DWORD	0 or 1	0：No Silence 1：Silence	Restart
HKLM\PDA\BUZ\keypd\Frequency	DWORD	20-20KHz	Frequency	
HKLM\PDA\BUZ\keypd\Volume	DWORD	0-100	Volume	
HKLM\PDA\BUZ\keypd\Duration	DWORD	0-0xFFFFFFFF	Duration	

Prompt Buz

Path	Type	Range	Remark	Validate
HKLM\PDA\BUZ\silent	DWORD	0 or 1	0：No Silence 1：Silence	when calling Beep function
HKLM\PDA\BUZ\Volume	DWORD	0-100	Volume	
HKLM\PDA\BUZ\EnVibrator	DWORD	0 or 1	Enable Vibrator	

If you want more details about the configuration, please see the “Read Me” of uTools CE or download the concern files from www.nlscan.com.

Key Value

PT980 Keyboard	PC Keyboard	Macro	Hex Value
1	1	‘1’	0x31
2	2	‘2’	0x32
3	3	‘3’	0x33
4	4	‘4’	0x34
5	5	‘5’	0x35
6	6	‘6’	0x36
7	7	‘7’	0x37
8	8	‘8’	0x38
9	9	‘9’	0x39
0	0	‘0’	0x30
*	*	VK_MULTIPLY	0x6A
#	#	VK_SHIFT+ ‘3’	0x10+0x33
Up	Up	VK_UP	0x26
Down	Down	VK_DOWN	0x28
Left	Left	VK_LEFT	0x25
Right	Right	VK_RIGHT	0x27
OK	Enter	VK_RETURN	0x0d
C	Esc	VK_ESCAPE	0x1b
Delete	BackSpace	VK_BACK	0x08
Space	Space	VK_SPACE	0x20
Fn	F16	VK_F16	0x7f
SCAN	F15	VK_F15	0x7e
Left Fn Key	F13	VK_F13	0x7c
Right Fn Key	F14	VK_F14	0x7d

Testing Codes

Code128

UCC/EAN-128

UPC-E

UPC-A

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Code 39

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QR Code

Micro QR

Aztec

Data Matrix

Version	Data Source	Description	Date	Approved
V2.1			20090826	